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APPENDIX II.

[Vide answer to question No. 1256 asked by Mr. C. Ramasomayajulu at the meeting of the Legislative Council held on 1st February 1929, page 522 supra.]

Letter from L. H. Greg, Esq., Chief Engineer for Irrigation, No. 2106/1928, C.E.P., dated 11th January 1929.

[Legislative Council question No. 749—Godavari river—Silting up.]

[*Reference.*—Your Memorandum No. 16726-D/28-4, dated 26th October 1928.]

Your Memorandum calls for a full report on the following points:—

(1) Whether the river has been silting up,
(2) if so, what are the causes, and
(3) what remedies can be suggested.

(1) *Whether the river has been silting up.*—The Superintending Engineer, Waltair Circle, is of the opinion that the river has been silting up year after year as evidenced by the annual river charts and that the silting up process is quite perceptible. It may be accepted that the construction of such a work as an anicut across the bed of a river will tend in the process of time to the deposition of silt in the bed of the river for some distance above the anicut. This is one of the main objections to the solid form of dam construction such as an anicut and the more modern practice is what is known as a regulator which consists of a series of openings such as a bridge with these openings fitted with large regulating shutters by the manipulation of which the water level in front of the regulator can be adjusted and in times of heavy floods these shutters can be lifted clear. By these means it is not necessary to raise the crest of the masonry work permanently to such a height as would be necessary if the ordinary anicut form of solid dam had been employed. It is, of course, usual to provide what are known as scouring sluices or undersluices at the end of the anicut adjacent to the head sluice of the canal taking off from above the anicut but the main object of these scouring sluices or undersluices is to keep open the approach channel to the canal head sluice and their effect is but local and in the case of long anicuts such as those of the Godavari the effect of scouring sluices on keeping clear the main river-bed above the anicut is negligible.

The anicut of Dowlaishweram consists of four sections—

	FEET.
(1) Dowlaishweram	4,940
(2) Ralli	2,859
(3) Maddur	1,548
(4) Vizeswaram	2,598
Total ...	11,945

These four anicuts are connected by three lankas or islands—Pichika lanka, Bobber lanka and Maddur lanka. There are three sets of undersluices, one at Dowlaishweram for the eastern delta canals, one at Bobber lanka for the Central delta canals at the end of the Ralli anicut and the third set at Vizeswaram for the Western delta canals. There are no undersluices at the Maddur anicut.

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Though the bed of the river above the anicut has no doubt changed from its condition prior to the anicut construction it is a matter of some difficulty to say whether there has been any real material alteration as would permanently effect adversely the supply to the three delta divisions. This difficulty is due to the very great alterations in the deep bed of the river observable from the soundings plotted from the river charts of the Dowlaishweram anicut for the years 1895-96, 1900-01, 1910-11, 1914-15, 1920-21 and 1925-26. Taking a point about 18,000 feet above the anicut we find that the bed of the river remains at almost the same depth below the anicut crest for the years 1895-96, 1900-01 and 1910-11 this depth being 22 to 23 feet but in the year 1914-15 the level was about 36 feet below anicut crest and shoaled up to 25 feet below crest in 1920-21 and to 22 feet below crest in 1925-26.

At a point about 12,500 above the anicut the bed was 38 feet below crest in 1895-96; shoaled to 27 feet in 1900-01 and to 23 feet in 1910-11 and then scoured to 33 feet below crest in 1914-15 but then shoaled up to 23 feet below crest in 1920-21 and to 12 feet in 1925-26.

At a point about 7,000 feet above the anicut excepting in the year 1910-11 when the bed shoaled up to 17 feet below crest there was scouring the maximum being in 1925-26 when the level was 26 feet below crest.

At a point about 1,000 above the anicut the bed was 24 feet below crest; silted up to 13 feet in 1900-01; scoured to 18 feet below crest in 1910-11; shoaled up to 8 feet in 1914-15 and scoured to 29 feet below crest in 1925-26.

From these soundings it can be seen how the deep bed of the river varies over a series of years.

(2) *If so what are the causes.*—As already explained under (1) the silting of a river-bed above an anicut is inevitable.

The Superintending Engineer, Waltair Circle, is of the opinion that the trouble may have been aggravated by the construction of the Railway Bridge across the river at Rajahmundry some five miles above the anicut. There was much discussion as to what effect the construction of this bridge might have on the river-bed between the bridge and the anicut at the time of the construction of the bridge and a great variation of opinions was evinced by the various officers who considered the matter.

(3) *Remedies.*—The work of removing vegetation on the shoals is being carried out year after year under the river conservancy operations and the Superintending Engineer considers that the following remedial measures that have been attended to by the Public Works Department as necessity arose carried on on a greater scale will wash off silt above the anicut.

Cutting leading channels in the shoals and ploughing as this will tend to the more easy removal of the shoal during floods.

As regards the provision of further undersluices in the body of the anicut, this would be a very expensive matter and I am not prepared to recommend it. With a view to ensure increased supply of water for irrigation in the delta an estimate for Rs. 2,600 was approved for raising the pivots of the falling shutters on the anicut crest by one inch. The results of this will be watched and further action taken if necessary.